WEST VIRGINIA
GEOLOGICAL SURVEY

Pocahontas County

By

PAUL H. PRICE, Assistant Geologist

DAVID B. REGER, Assistant Geologist in Charge.

1929

PART I.

History and Physiography.

CHAPTER I.

HISTORICAL AND INDUSTRIAL DEVELOPMENT.

LOCATION.

The area treated in this Report is Pocahontas County with sufficient information on adjoining areas to show the relation thereto. Pocahontas is situated along the eastern border of the State just south of center, being included between the parallels 38° 00′ and 38° 45′ north latitude and 79° 35′ and 80° 25′ west longitude from Greenwich. It is bounded on the north by Randolph County, on the east by Pendleton County and Highland and Bath Counties, Virginia, on the south by Greenbrier County, and on the west by Greenbrier and Webster Counties. The eastern boundary follows the summit of Allegheny Mountain, while the remaining boundaries are arbitrary. The greater part of the county is drained by Greenbrier River which has its source in the extreme northeastern corner and flows in a general southwest direction, thus roughly bisecting the county. The western part of the county is drained by Cherry, Cranberry, and Williams Rivers, tributaries of Gauley River, Elk River, and Shavers Fork of Cheat River. Pocahontas County is very irregular in outline, having no definite form. Its greatest length northeast-southwest is approximately 56 miles, and its greatest width southeast-northwest is 29 miles. Its geographical position is shown on Figure 2 in the Author's Preface.

TRANSPORTATION.

WATERWAYS.

Transportation by means of waterways has played a minor part in the economic development of the county. In the early days, however, several of the larger streams were used in floating logs to the mill. Particularly was this true in the western part of the county where temporary dams were built. These were released during the rainy season carrying the logs to the mill, then located at Richwood. This method, although expedient in those days, proved very wasteful. Evidence remains to this day of many fine logs that never reached their destination. In more recent years this method has been replaced by steam railroads. (See Chapter on Water-Power).

STEAM RAILROADS.

Chesapeake and Ohio Railway.—Greenbrier Division.—The Greenbrier Division of the Chesapeake and Ohio Railway is a branch from the main line at Whitcomb, Greenbrier County, and extends northward across this county into Pocahontas, following the Greenbrier River to its northern termination at Winterburn Station (Thornwood P. O.). At Durbin it connects with the Western Maryland Railway. It was completed to Cass in 1901, to Durbin in 1902, and to Winterburn in 1905. The completion of this railroad marked a new era in the prosperity of Pocahontas County and has continued to be one of the most valued assets of this county.

In reply to an inquiry regarding its construction, first operation, and track mileage, the late G. B. Wall, Vice-President, supplied the following summary:

"The construction of this branch began in June, 1899, and was completed in June, 1905. The date of the first operation of trains over the Greenbrier Branch in Pocahontas County was in December, 1900. The mileage of this branch in Pocahontas County, West Virginia, is—Main Line, 65.5 miles, with 12.73 miles of sidings."

Western Maryland Railway. — Durbin Branch. — The Durbin Branch of the Western Maryland Railway extends

from Elkins, Randolph County, to Durbin, and there connects with the Greenbrier Division of the Chesapeake and Ohio Railway. According to J. W. Broome, Superintendent, this branch was completed by the Coal and Iron Railway Company on August 1, 1903, and was purchased by the present owners on November 1, 1905. In Pocahontas County there are 17.62 miles of main track with 2.01 miles of sidings.

Spruce Branch.—During 1928 the Western Maryland Railway Company purchased that portion of the Greenbrier, Cheat and Elk Railroad beginning at Cheat Junction, Randolph County, and extending south along Shavers Fork to Spruce, where it turns west, crossing through the mountain passes between the headwaters of Tygart, Cheat, and Elk Rivers, and then down Big Spring Fork of Elk to Slaty Fork. From this point it extends northwestward down main Elk, passing into Randolph County at the mouth of Douglas Fork, and entering Webster County at the Whitaker Falls, and thence proceeding down the south side of the river to Bergoo at the mouth of Leatherwood Creek. This road is entirely of standard gauge, the principal function of which in previous years was as a log carrier for the West Virginia Pulp and Paper Company. This road will provide a general freight and passenger service in this territory, which also includes extensive coal deposits of eastern Webster, southern Randolph, and northwestern Pocahontas Counties.

West Virginia Pulp and Paper Company Lumber Railroad.—Certain portions of what was formerly the Greenbrier, Cheat and Elk Railroad were not included in the Western Maryland purchase and are now operated by the West Virginia Pulp and Paper Company. These include a branch from Slaty Fork extending around the eastern side of Gauley Mountain and entering Randolph County near the northern prong of Big Run, and another branch from Spruce southeastward across Back Allegheny Mountain, through a mountain pass 3,940 feet above sea-level, down Leatherbark Run, to Cass where it connects with the Chesapeake and Ohio Railway. According to Charles W. Luke, Manager of the Company operations at Cass, the branch extending from Slaty Fork into Randolph County on Gauley Mountain will

be taken up after the timber is removed from that area, but the branch connecting the Chesapeake and Ohio at Cass with the Western Maryland at Spruce will in the future be operated by the Lumber Company as a private railroad.

HIGHWAYS.

State Roads.

In many of our counties ingress and egress by motor during the winter months have been possible only during the last few years, Pocahontas County being no exception. Since the revision of the road laws in 1921 and the establishment of a State Road Commission, this condition is fast being remedied. When the present road-building program is completed all West Virginia county-seats will be connected with hard-surfaced roads, as well as to the main arteries of travel outside the State.

From the State Road Commission's Official Map, the topographic maps of the United States Geological Survey, and the writer's own knowledge of the roads in Pocahontas County, the following information is given:

State Route No. 24.—(Seneca Trail, in part).—State Route No. 24 begins at Princeton, Mercer County, and continues east across Mercer to Glenlyn, Virginia, thence following the meanders of New River by way of Lurich to Narrows, crossing New River, and thence north along this stream to Rich Creek and thence to Peterstown, West Virginia. Continuing in a northeast direction across Monroe and Greenbrier Counties, it crosses the Midland Trail (Route No. 3) at Lewisburg, and entering Pocahontas County on Droop Mountain southwest of Hillsboro, continues through Marlinton, passing just west of Edray to Slaty Fork. Here the road turns east to Linwood where it again turns north, leaving Pocahontas and entering Randolph, at Mace, and continues north in Randolph County to Huttonsville where it joins the Staunton and Parkersburg Pike which is there coincident with Route No. 56.

tas County line to Campbelltown through Hillsboro, Mill Point, Buckeye, and Marlinton, is a good paved road. From Campbelltown the road has been relocated so as to ascend the steep grade just west of Campbelltown, joining the old road about one mile farther north. Again just south of Edray the road takes a new course, securing a much better grade by ascending Wolfpen Ridge and joining the old road at the summit. From the summit the new road follows, in general, the old except to straighten out abrupt curves and secure better grades. From Campbelltown to the county line at Mace, by way of Slaty Fork and Linwood, the road has been graded. This route is one of the most scenic in the State.

State Route No. 56 or Staunton and Parkersburg Pike.—State Route No. 56 enters Pocahontas County from Staunton, Virginia, by way of Monterey, 2½ miles east of Top of Allegheny, descending this slope to Bartow on the East Fork of Greenbrier River, thence following the north side of this stream to Durbin, here crossing the West Fork of Greenbrier River and ascending Back Allegheny Mountain by the best possible grade and leaving Pocahontas and entering Randolph on the saddle between Back Allegheny and Shavers Mountains. It then continues in a northerly direction to Elkins, thence across Barbour County by way of Philippi, and thence almost due north to Grafton in Taylor County where it joins the Northwestern Pike. From the Virginia line to Bartow, 10 miles, it is unimproved but is a good dirt road. From Bartow to Greenbrier River at Durbin, 3.58 miles, it is a good paved road. From Durbin to the Randolph County line, 5.6 miles, the final grading is completed. This route is also one of the State's scenic highways.

State Route No. 42.—State Route No. 42 is entirely within the limits of this county, starting from Route No. 56 at Bartow and passing south by way of Boyer, Green Bank, Dunmore, and Frost, and connecting with Route No. 43 just west of Minnehaha Springs. This route, which is 32.84 miles long, has been graded and improved with local chert gravel during the last few years and is now being given a macadam binder that assures an excellent road throughout the year.

State Route No. 43.—This route is also a short one,

having its limits within the county, from Marlinton to the Virginia State line by way of the Knapp Creek gorge and Minnehaha Springs. From Marlinton to the Minnehaha Springs bridge, it is a good paved road, but thence to the Virginia line is unimproved.

County Roads.

The greater part of Pocahontas County is connected with good county roads leading to the main arteries of travel that have been built and are now maintained by the State Road Commission. The county roads, constructed and maintained under the supervision of the County Commissioners, compare favorably with other counties of the State. Taking advantage of the abundance of chert, gravel, and limestone, many miles of county roads are passable throughout the year. In the western part of the county, however, very few roads of any description are found, travel being confined to the rough mule trails that follow the valleys or mountain ridges, and to the logging railroads.

DROOP MOUNTAIN BATTLEFIELD STATE PARK.

Droop Mountain Battlefield State Park is located on the northern end of Droop Mountain just west of and adjoining the Seneca Trail (State Route No. 24) at Spice P. O. Here the State has bought 125 acres, or a part of the battlefield, for a State Park, as a memorial to the soldiers who fought (November 6, 1863) in the greatest battle of the Civil War on West Virginia soil.

Droop Mountain and vicinity is one of the beauty spots of the State, with magnificent views on all sides. On the east and a thousand feet below, an occasional glimpse of the Greenbrier River can be seen, while on the northeast is the town of Hillsboro located in a broad limestone valley surrounded with many fine well-kept farms. On the west stand the rugged mountains that compose the Yew Range and separate the Greenbrier drainage from that of the Gauley. The park was dedicated July 4, 1928.

From the standpoint of both historic interest and scenic beauty, this park should be one of the most popular in the State.

GENERAL DESCRIPTION.

MISCELLANEOUS ITEMS.

Formation.—Pocahontas County was formed by an Act of the General Assembly of Virginia in December, 1821, from parts of Bath, Pendleton, and Randolph Counties.

In a letter from Andrew Price of Marlinton, West Virginia, on December 15, 1927, he quotes from "Dyer's Index" regarding the formation, as follows:

"Beginning at the line of Greenbrier County on top of the Alleghaney Mountain, thence with the said line to the head of Spice Run, thence with said line to the end of the Droop Mountain, thence with said line to Fryer's Knob, thence with said line to where it intersects the line of Bath and Randolph, thence with the line dividing Randolph and Greenbrier Counties to the mountain opposite the junction of the Bannock Shoals Run with Williams River, thence a straight line to the mouth of the Dry Fork of Elk River, thence a straight line to the top of the mountain between the head of the Valley River and the point last aforesaid, where the road leading from Clover Lick to Randolph courthouse crosses said mountain, thence a straight line to where the line of Pendleton County intersects the line of Bath and Randolph Counties on top of the mountain between Cheat and Greenbrier Rivers, thence with the top of said mountain to where the road* leading from Slaven's to Randolph courthouse crosses it, thence a straight line to the top of the Alleghaney Mountain opposite the head of the east fork of the Greenbrier River, thence with the top of said mountain to the Pendleton line, thence with the top of said mountain to the beginning."

*Here Mr. Price comments further as follows:

"From this point the original calls show an ignorance on the part of the draftsman of the bill as to the topography of the country and the calls are ambiguous. If complied with it was found that it would cut the county of Pendleton in two parts not joining. In the controversy with Randolph County in the eighties the commissioners fixed the present boundaries of the county to continue north of the Slaven road with the top of the mountain to a point opposite the divide between the headwaters of the Glady Fork of Cheat River and Greenbrier River, thence with the meandering of the crest of that divide to the top of Alleghany Mountain, and thence with the top of that mountain to the beginning."

"The present boundary of the county from the point where the road from Clover Lick crosses now the point where the Seneca Trail or Road 24 crosses Valley Mountain, to the Alleghany Mountain by way of Cheat River, is the original boundary of the District of West Augusta in part."

As pointed out by Mr. Price the original boundaries were ambiguous and many of the older maps, including the State map of the Survey, show the line from the Staunton and Parkersburg Pike on Cheat Mountain as a straight line to the Crest of Allegheny. The last commission appointed to fix the boundary between Pocahontas and Randolph made it so as to include the watershed of Greenbrier River in Pocahontas County. This would seem to be the logical boundary.

Area.—The present area of Pocahontas County, as determined with planimeter from the topographic sheets of the United States Geological Survey, is as follows:

Districts.	Square Miles.
Greenbank	319.24
Huntersville	193.64
Edray	237.05
Little Levels	192.68
Total	942.61

Relief.—The surface of Pocahontas County is for the most part rugged and mountainous, the causes of which will be discussed in detail under the Chapter on Physiography. The eastern side of the county has been greatly dissected by the Greenbrier River and its tributaries, the river having left steep precipitous banks below the level of the Harrisburg Peneplain. The western side of the county, marking the true beginning of the Appalachian Plateau, has its drainage to the west, the various rivers having cut deep channels below the level of this ancient plateau. The entire county stands high above sea-level, a large part of it reaching well above the 4000-foot level.

The surface varies in elevation from 1,952 feet on Greenbrier River at the Pocahontas-Greenbrier County line to 4,842 feet at Bald Knob on Back Allegheny Mountain, 3½ miles northwest of Cass, making a total difference of 2,890 feet, the latter point being only 18 feet lower than Spruce Knob in Pendleton County, the highest point in the State, with an elevation of 4,860 feet.

Climate.—From the standpoint of climate Pocahontas might be divided roughly into two parts, that is, highlands and valleys or lowlands. Being a very mountainous county

with high elevations and located on the western side of the main Alleghenies, it is subject to severe winters. The valleys, however, being protected on either side, have less severe winters. During the summer months the weather is ideal, seldom averaging over 70 degrees Fahrenheit during July, the warmest month of the year. The nights are cool and ideal for sleeping. Pocahontas County's climate should be considered as one of its large assets.

Climatological facts can best be gained by examining the records of past years. This county is particularly fortunate in having such a public-spirited citizen as Mr. S. L. Brown, Clerk of the County Court, who has kept practically a complete record of temperature, rainfall, and snowfall at Marlinton since 1893. At Arbovale complete rainfall records have been kept since December, 1924, by Mr. H. S. Sutton.

The following statistics concerning temperature, precipitation, snowfall, and frosts at Marlinton, and the precipitation data at Arbovale, as secured by the above observers, were furnished by H. C. Howe, Section Director, United States Weather Bureau, Parkersburg, West Virginia:

Monthly, Annual, and Mean Temperature in Degrees Fahrenheit at Marlinton. S. L. Brown, Observer.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
1893	....	32.2	39.4	50.6	56.6	67.2	....	....	....	51.6	38.0	32.4	.....
1894	33.1	31.3	41.1	47.2	....	66.9	....	....	....	....	38.9	....	.....
1895	....	28.5	37.5	....	....	....	....	....	....	43.4	42.5	32.4	.....
1896	29.1	31.1	34.8	53.0	66.1	69.7	71.0	68.7	61.4	47.4	44.4	31.4	50.7
1897	25.1	33.2	41.7	47.6	55.1	65.2	69.6	67.1	60.9	53.8	39.7	33.9	49.4
1898	33.8	30.0	45.6	43.9	60.0	66.9	71.2	69.8	64.3	52.2	....	....	
1899	29.6	26.4	39.8	48.8	61.0	69.0	70.2	70.0	60.4	53.4	41.4	28.8	49.9
1900	30.5	28.1	36.0	48.2	59.5	68.6	69.8	72.0	67.2	55.8	38.8	30.6	50.4
1901	30.0	25.6	38.6	43.1	58.3	66.8	73.4	68.3	60.0	50.0	33.0	29.8	.....
1902	....	....	....	....	....	....	....	....	....	....	....	....	.....
1903	....	....	....	47.2	58.9	62.1	69.0	68.6	61.9	49.5	33.4	22.4	.....
1904	23.0	25.0	....	44.0	57.4	64.8	66.0	66.2	62.0	48.8	34.0	30.0	.....
1905	....	....	41.3	48.8	60.5	66.2	69.7	67.6	61.0	50.0	40.0	....	.....
1906	....	....	....	....	....	....	....	....	....	....	....	....	.....
1907	....	....	....	42.2	57.6	....	70.0	67.5	64.0	....	....	32.6	.....
1908	23.6	26.6	43.8	51.1	62.4	....	....	....	....	....	....	....	.....
1909	....	....	....	....	....	....	64.8	65.2	58.6	44.6	43.2	24.9	.....
1910	28.7	28.7	44.0	48.6	....	60.9	67.6	64.8	64.1	50.7	32.0	23.6	.....
1911	32.8	34.0	35.4	44.0	61.2	67.2	70.2	72.8	69.1	57.6	39.1	37.2	51.7
1912	23.2	27.8	40.4	52.4	58.9	62.4	69.4	66.0	65.8	52.4	36.2	28.8	48.6
1913	34.4	29.9	40.4	47.5	56.2	64.6	69.2	67.0	58.0	47.4	38.6	31.2	48.7
1914	31.7	27.6	35.0	48.6	53.9	65.8	65.8	65.6	....	....	....	....	.....
1915	26.3	32.6	29.0	48.4	55.4	61.0	65.0	64.0	61.5	51.3	37.5	26.6	46.6
1916	32.4	28.8	33.4	44.3	58.1	60.5	68.2	67.2	57.2	48.0	37.2	27.7	46.9
1917	29.4	27.1	36.9	45.8	50.2	61.2	66.3	64.2	57.4	42.7	33.6	18.0	44.4

Monthly, Annual, and Mean Temperature in Degrees Fahrenheit at Marlinton, (Continued). S. L. Brown, Observer.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sspt.	Oct.	Nov.	Dec.	Annual.
1918	16.0	28.8	40.3	44.3	60.8	61.8	64.0	68.6	54.3	50.0	35.9	33.8	46.6
1919	26.1	29.1	39.0	46.0	56.2	66.0	67.5	63.6	59.0	56.2	37.4	26.0	47.7
1920	25.3	26.4	34.8	43.6	52.6	60.4	62.3	64.0	....	....	....	29.1	.....
1921	28.4	31.2	45.3	46.6	53.9	65.0	69.2	61.8	63.4	44.7	38.3	29.8	48.1
1922	23.6	31.8	38.2	46.4	56.0	63.4	65.5	60.9	61.0	48.4	36.8	31.8	47.0
1923	28.6	27.7	36.0	44.4	54.5	65.0	64.8	65.3	60.5	46.2	36.1	36.6	47.1
1924	24.6	27.3	34.0	45.0	51.7	63.6	64.2	65.9	55.6	49.2	37.2	28.0	45.5
1925	25.0	35.2	38.0	49.3	52.4	66.4	66.0	64.2	64.9	44.6	35.0	27.4	47.4
1926	24.3	30.2	29.9	41.6	56.4	60.3	66.0	67.4	63.0	49.1	34.0	29.0	45.9
1927	28.6	37.0	41.2	46.8	56.4	61.4	65.9	61.9	60.6	50.7	40.5	28.2	48.3
Means	27.7	29.6	38.3	46.8	57.0	64.5	67.6	66.4	61.4	49.8	37.6	29.4	48.0

Monthly, Annual, and Mean Precipitation in Inches at Marlinton. S. L. Brown, Observer.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
1893	....	5.49	1.72	2.91	4.47	5.80	....	....	....	5.32	1.99	1.91	.....
1894	1.81	3.39	1.84	2.06	....	2.69	....	....	....	....	1.84	....	.....
1895	....	1.05	1.46	4.41	2.40	....	....	....	....	1.35	1.82	4.14	.....
1896	1.45	5.26	6.99	1.82	3.74	3.71	7.80	3.28	4.88	1.22	4.93	1.08	45.76
1897	2.17	5.88	5.21	2.85	7.06	5.59	5.65	2.74	0.80	0.95	4.08	4.64	47.62
1898	5.61	1.47	5.23	4.32	5.27	7.50	6.76	9.15	3.33	4.54	3.85	3.71	60.74
1899	3.26	5.32	6.28	1.60	7.68	1.92	2.95	3.43	4.01	1.56	0.83	3.09	41.93
1900	1.99	5.22	4.92	2.25	2.80	5.32	5.69	2.42	2.57	1.90	7.11	2.99	45.18
1901	3.58	0.97	3.06	6.13	5.11	8.77	3.59	8.03	....	....	....	....	.....
1902	....	....	....	....	....	....	....	....	3.69	....	....	....	.....
1903	....	....	....	4.04	1.79	4.55	2.98	3.30	1.83	1.52	0.93	2.44	.....
1904	4.11	3.10	....	1.12	3.43	2.98	....	....	....	....	....	....	.....
1905	....	....	3.27	2.05	3.91	7.57	8.25	2.60	....	....	....	....	.....
1906	....	....	....	....	....	....	....	....	....	....	....	....	.....
1907	....	....	....	....	....	....	....	....	....	....	....	....	.....
1908	....	3.22	....	....	....	....	....	....	....	....	....	....	.....
1909	....	....	....	....	....	....	....	....	1.59	3.31	1.90	3.34	.....
1910	4.32	2.75	0.59	2.50	2.67	7.38	7.09	5.58	3.56	2.03	1.14	3.63	43.24
1911	7.21	2.23	4.77	4.48	1.35	1.97	2.07	6.54	3.61	5.96	3.66	3.55	47.40
1912	2.46	2.80	6.12	3.17	4.52	3.45	2.67	1.88	4.56	1.53	2.18	4.20	39.54
1913	4.42	2.70	5.80	3.75	5.20	2.85	4.70	3.74	2.02	5.43	3.05	2.75	46.41
1914	2.51	3.19	2.54	4.58	1.54	2.37	3.73	5.22	1.75	3.70	1.10	5.30	37.53
1915	7.42	4.16	1.33	1.86	3.34	4.46	3.90	4.20	4.10	4.47	2.82	4.18	46.24
1916	4.09	3.51	4.88	3.10	3.72	5.32	7.14	4.78	4.31	1.90	1.75	3.38	47.88
1917	4.63	3.62	9.40	2.70	4.09	2.23	7.22	2.07	3.37	3.29	0.94	2.11	45.67
1918	6.44	2.98	6.52	6.50	4.38	10.11	4.62	5.60	4.73	4.64	1.92	5.18	63.62
1919	5.84	3.41	4.69	3.11	6.71	7.01	9.20	4.58	1.36	4.43	4.99	5.21	60.54
1920	4.03	2.78	5.04	5.56	3.05	5.53	5.24	8.90	3.40	0.80	4.75	4.37	53.45
1921	3.48	1.59	3.49	1.63	3.15	4.14	3.09	3.36	3.45	4.26	4.44	4.62	40.70
1922	3.28	5.49	6.13	3.33	5.19	4.66	5.34	6.57	0.95	1.67	1.01	6.26	49.88
1923	4.64	4.11	4.38	4.31	2.78	3.44	5.30	4.89	2.92	1.53	4.01	4.82	47.13
1924	5.26	3.41	3.65	3.53	6.49	4.54	5.06	5.85	7.68	0.10	3.11	3.75	52.43
1925	4.53	1.64	3.94	2.85	2.05	4.38	6.40	2.48	2.27	6.93	4.16	1.93	43.50
1926	4.93	3.94	4.27	3.08	4.57	3.10	7.03	10.56	3.00	5.44	3.60	7.40	60.92
1927	2.74	6.68	2.83	7.84	2.60	4.05	4.56	5.55	1.29	4.28	4.03	4.78	51.23
Means	4.08	3.50	4.30	3.45	3.97	4.74	5.31	4.90	3.10	3.11	2.93	3.88	47.27
Average Number Rainy													

Monthly, Annual, and Mean Snowfall in Inches at Marlinton. S. L. Brown, Observer.

Year.	Jan.	Feb.	Mar.	Apr.	May	Oct.	Nov.	Dec.	Annual.
1893...	M	18.5	1.0	.....	.....	.....	2.5	3.0	.....
1894...	6.0	18.0	1.0	T	.....	.....	5.0	M	.....
1895...	M	8.0	10.5	1.0	.....	.....	0.5	9.8	.....
1896...	1.1	3.1	14.2	1.5	.....	.....	3.0	2.0	24.9
1897...	10.0	13.5	6.0	T	.....	.....	1.0	4.0	34.5
1898...	9.0	3.0	6.0	2.5	.....	.....	3.5	11.7	35.7
1899...	4.0	27.5	3.0	T	.....	.....	T	8.0	42.5
1900...	T	7.0	21.0	T	.....	.....	1.5	2.5	32.0
1901...	9.3	1.5	0.5	.....	.....	.....	M	M	.....
1902...	M	M	M	M	.....	1.0	1.5	11.0	.....
1903...	M	M	M	T	T	.....	3.0	12.0	.....
1904...	10.5	10.5	M	T	T	.....	M	M	.....
1905...	M	M	T	1.0	.....	.....	M	M	.....
1906...	M	3.5	26.5	.....	.....	.....	M	M	.....
1907...	M	M	M	M	.....	.....	M	M	.....
1908...	M	32.0	M	M	.....	T	7.0	20.1	.....
1909...	M	M	M	M	.....	.....	M	M	.....
1910...	5.0	9.0	4.0	.....	.....	T	T	15.0	33.0
1911...	9.0	3.5	6.5	.....	.....	.....	0.2	1.5	20.7
1912...	11.5	6.0	5.5	.....	.....	.....	T	8.0	31.0
1913...	4.0	1.0	T	1.0	.....	.....	3.0	2.5	11.5
1914...	14.6	20.0	15.5	.....	.....	.....	M	M	.....
1915...	19.0	T	6.0	0.5	.....	T	2.0	7.0	34.5
1916...	10.5	6.5	7.0	10.0	.....	.....	T	14.5	48.5
1917...	8.5	6.0	2.5	T	.....	3.0	T	18.0	38.0
1918...	31.0	5.0	T	8.5	.....	.....	T	1.5	46.0
1919...	8.5	7.5	T	T	.....	.....	0.5	6.5	23.0
1920...	1.0	5.0	0.5	2.0	.....	.....	M	2.5	M
1921...	9.0	10.0	T	T	.....	T	T	5.5	24.5
1922...	15.0	16.0	1.5	T	.....	.....	0.5	1.0	34.0
1923...	9.5	9.0	2.0	0	1.5	.....	T	1.0	23.0
1924...	2.0	9.0	3.5	2.0	.....	.....	5.0	T	21.5
1925...	23.5	T	6.0	T	.....	13.0	T	T	42.5
1926...	11.5	9.5	16.5	6.0	.....	T	T	1.5	45.0
1927...	4.5	7.0	1.0	0.5	.....	.....	2.0	1.0	16.0
Means.	9.5	9.2	5.8	1.2	T	0.6	1.6	6.3	31.5

M indicates report missing.

T indicates trace.

No snowfall recorded in June, July, August, or September, 1893-1927.

Frost Data at Marlinton. S. L. Brown, Observer.

Year.	Date of last killing frost in spring.	Date of first killing frost in autumn.	Length of growing season—last killing frost to first killing frost.	Latest date with temperature 32 degrees or lower in spring	Earliest date with temperature 32 degrees or lower in autumn.
1893	May 19	Oct. 16	149	May 19	Oct. 16
1896	Apr. 23	Sept. 24	153	Apr. 23	Sept. 24
1897	May 4	Sept. 21	139	May 4	Sept 21
1898	May 13	Oct. 15	154	May 9	Oct. 15
1899	Apr. 17	Sept. 28	163	Apr. 17	Sept. 28
1900	May 10	Oct. 11	153	May 10	Oct. 11
1901	May 14	*	*	May 14	*
1902	*	Sept. 10	*	*	Sept. 10
1903	May 6	Sept. 30	146	May 6	Sept. 30
1904	May 12	*	*	May 12	*
1905	May 24	*	*	May 24	*
1906	May 28	*	*	May 28	*
*	*	*	*	*	*
1908	May 1	Sept. 28	149	May 1	Sept. 28
1909	*	Sept. 27	*	*	Sept. 27
1910	May 16	Oct. 24	160	May 16	Oct. 24
1911	May 7	Oct. 24	169	May 7	Oct. 24
1912	June 10	Oct. 1	112	June 10	Oct. 1
1913	June 10	Sept. 23	104	June 10	Sept. 22
1914	June 17	*	*	June 17	
1915	May 18	Oct. 9	143	May 18	Oct. 9
1916	May 20	Sept. 19	121	May 20	Sept. 19
1917	May 26	Sept. 11	107	May 26	Sept. 11
1918	May 3	Sept. 22	141	*	Sept. 22
1919	Apr. 19	Oct. 20	183	*	Oct. 19
1920	May 16	*	*	May 16	*
1921	May 17	Oct. 1	137	May 17	Oct. 1
1922	May 8	Sept. 26	142	May 8	Sept. 26
1923	May 11	Oct. 21	164	May 18	Oct. 5
1924	May 2	Oct. 21	173	May 23	Sept. 6
1925	May 27	Oct. 11	138	May 27	Oct. 10
1926	May 24	Oct. 27	156	May 4	Oct. 8
1927	May 2	Sept. 23	144	May 2	Sept. 22
Average Date...	May 16	Oct. 4	146	.....	.....

* No data.

Monthly and Annual Precipitation in Inches at Arbovale. H. S. Sutton, Observer.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
1924	....	....	....	....	....	....	....	....	....	....	....	2.54	.....
1925	3.11	1.64	3.64	2.05	2.83	2.68	6.67	1.23	3.14	5.66	3.36	1.40	37.41
1926	3.97	3.66	2.77	2.48	2.84	2.39	6.49	6.85	3.00	4.23	3.24	4.96	46.88
1927	2.36	5.36	1.47	6.85	1.69	3.72	4.31	5.72	1.15	3.72	3.31	3.61	43.27

Population.—The following table, taken from the United States Census Returns for 1920, shows the population of Pocahontas County by districts for the last three enumerations:

Minor Civil Division.	1920.	1910.	1900.
Edray District, including Marlinton town	4,016	4,150	2,678
Greenbank District, including Cass, Durbin, and Thornwood towns	6,048	6,128	2,496
Huntersville District	1,729	1,407	1,177
Little Levels District, including Hillsboro town	3,209	3,055	2,221
Totals for County	15,002	14,740	8,572

From 1900 to 1910 Pocahontas County had an increase in population of 72 per cent. which was largely due to the construction of the railroad. Marlinton, the county-seat, had a population of 1,177 in 1920.

Products.—The principal animal products of Pocahontas County are cattle, sheep, horses, chickens, swine, mules, and goats, in the order named.

The principal agricultural products are corn, oats, wheat, hay, potatoes, apples, peaches, grapes, and rye, in the approximate order named.

The principal manufactured products are lumber and leather. Under the former the Cherry River Boom and Lumber and the West Virginia Pulp and Paper Companies are the large producers with several smaller companies operating in the county. Large quantities of leather are shipped from the Greenbrier Tannery of the Union Tanning Company at Marlinton and the Pocahontas Tanning Company at Frank.

Coal has been exploited very little in the county and there are at present no producing mines. Limestone has been used extensively in road building with smaller amounts for agricultural purposes.

The mineral waters have not yet been developed. The fine flow of pure water at Minnehaha Springs is used occasionally during the summer months for bathing while a very

small part of the water from the Prichard Spring near Dunmore is bottled and trucked to Cass for drinking purposes.

Property Valuation.—According to Hon. Sam. T. Mallison, State Auditor, the following table shows the property valuation for Pocahontas County for three years:

	1925.	1926.	1927.
Real Estate	$ 9,591,380	$ 9,337,170	$ 9,106,690
Personal Property	4,837,835	4,498,290	4,342,190
Public Utilities	2,875,545	2,771,915	2,679,035
Total	$17,304,760	$16,607,375	$16,127,915

Postal Service and Village Populations.—Pocahontas County is served partly by railway mail and partly by star route and rural free delivery carriers. City delivery is afforded twice daily at Marlinton, the county-seat. The following table, compiled from the United States Postal Guide, with estimates of populations mainly by Calvin Price of Marlinton, shows the number of post-offices in the county. The parenthetic figures following the names of offices indicate the number of rural free delivery routes emanating therefrom:

Village.	Population.	Village.	Population.
Arbovale	50 (e)	Linwood	32
Bartow	165 (e)	Lobelia	56
Beard	40 (e)	Mace	20
Boyer	50 (e)	Marlinton (1)	1575 (a)
Buckeye	60 (e)	Mill Point	63 (e)
Burr	10 (e)	Minnehaha Springs	75 (e)
Cass	1195 (a)	Nottingham P. O. (Boyer Sta.)	45 (e)
Clover Lick	85	Onoto	30 (e)
Dunmore (2)	76	Raywood	166 (e)
Durbin	700 (e)	Seebert	75
Edray	56	Slaty Fork	60 (e)
Frank	400	Spice	20
Frost	66	Stony Bottom	86 (e)
Green Bank	110	Thornwood P. O. (Winterburn)	52 (e)
Hillsboro	215 (a)	Watoga	33 (e)
Hosterman	57 (e)	Woodrow	69 (e)
Huntersville (1)	80 (e)		
Jacox	15		

(a) Actual count.
(e) Estimated.

TOWNS AND INDUSTRIES.

Marlinton.

Marlinton, the county-seat of Pocahontas County, is beautifully situated on the flood-plain, at the junction of Knapp Creek and Greenbrier River, in the south-central part of the county, with an elevation of 2,123 feet above sea-level. It is the site of the oldest settlement in Pocahontas County, made by Stephen Sewell and Jacob Marlin during the winter of 1750-51, and was known as Marlin's Bottom until 1887. In December, 1890, Colonel John T. McGraw purchased the farms known as Marlin's Bottom (the name of the post-office had been changed three years before) for a town site. It was laid off in town lots and widely advertised "as a place where a town would be built". The Pocahontas Development Company was chartered to promote the town. It offered $5,000 to be applied on a new court-house if the people would change the county-seat from Huntersville to Marlinton. In 1891, by a special election this change was authorized and the removal was followed by the construction of the Greenbrier Division of the Chesapeake & Ohio Railway. The latter work began in June, 1899, and was completed in 1905, but the first operation of trains over this branch in Pocahontas County was in December, 1900. Since the completion of the railroad the town has continued to grow. According to Harris[1] the town was chartered in 1900 under Chapter 47 of the Code of 1899, with election to be held annually in January.

Located at Marlinton is a well-equipped graded school, the Edray District High School, two large churches, and three banks, The Bank of Marlinton, The First National Bank, and The Farmers and Merchants Bank. The town has two weekly papers, The Pocahontas Times, established in 1881, and The Marlinton Journal, established in 1918. The Greenbrier Tannery of the Union Tanning Company is located here as well as S. B. Wallace & Co., Wholesale Druggists, and several lumber companies. The population of Marlinton in 1900 was 171; in 1910 it was 1,045; and in 1920 it was 1,117.

---

[1]John T. Harris, W. Va. Legislative Handbook, p. 947; 1924.

Greenbrier Tannery.—The Union Tanning Company, with head offices in New York, has operated a tannery at Marlinton since about 1901, except during the latter part of 1927 and the early part of 1928, when the original plant was burned. After a short delay, however, a new and up-to-date tannery was built upon the original site. According to S. N. Hench, local superintendent, both tanbark and extract are used in tanning; its present daily capacity being approximately 600 hides; about 150 men, both skilled and unskilled, are employed, with an approximate pay-roll of $120,000 per year. This tannery has a reputation for producing a very fine grade of leather, which is known by the trade name of "Greenbrier", and is in great demand by the leather industry. The finished product is shipped almost entirely to Boston, Massachusetts. (See Plates IV and V).

Durbin.

Durbin is situated at the junction of the East and West Forks of Greenbrier River along the Staunton and Parkersburg Pike, being located upon the terrace of these two streams with an elevation of 2,730 feet. Here the Greenbrier Division of the Chesapeake and Ohio Railway connects with the Durbin Branch of the Western Maryland Railway and makes Durbin the shipping and mercantile center for the northern end of the county. The town was chartered June 20, 1906, by the Circuit Court, under Chapter 47 of the Code of 1899, with elections to be held annually in January. The population in 1920 was 422.

Cass.

Cass is situated along the Greenbrier River near the mouth of Deer Creek, just east of the southern end of Cheat and Back Allegheny Mountains, with an approximate elevation of 2,450 feet. According to Harris it was incorporated in 1902, its population by the Census of 1920 being 1,195, and hence the largest town in the county. It is situated on the first and second terraces of the river. It is served by

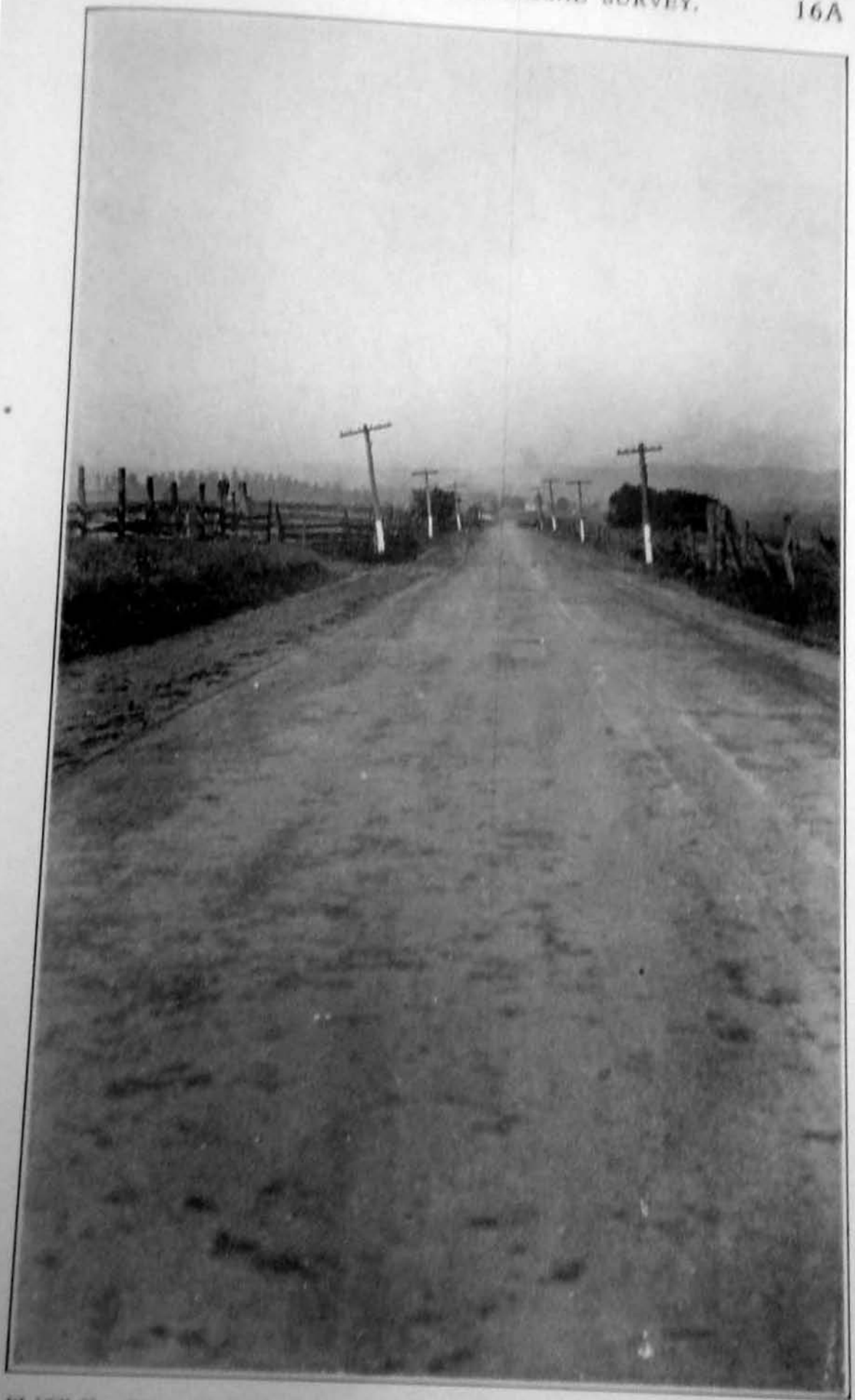


PLATE II.—Seneca Trail (State route 24) between Mill Point and Hillsboro. Two miles of straight road and said to be the longest stretch of straight road in the State. (Photo by Paul H. Price.)

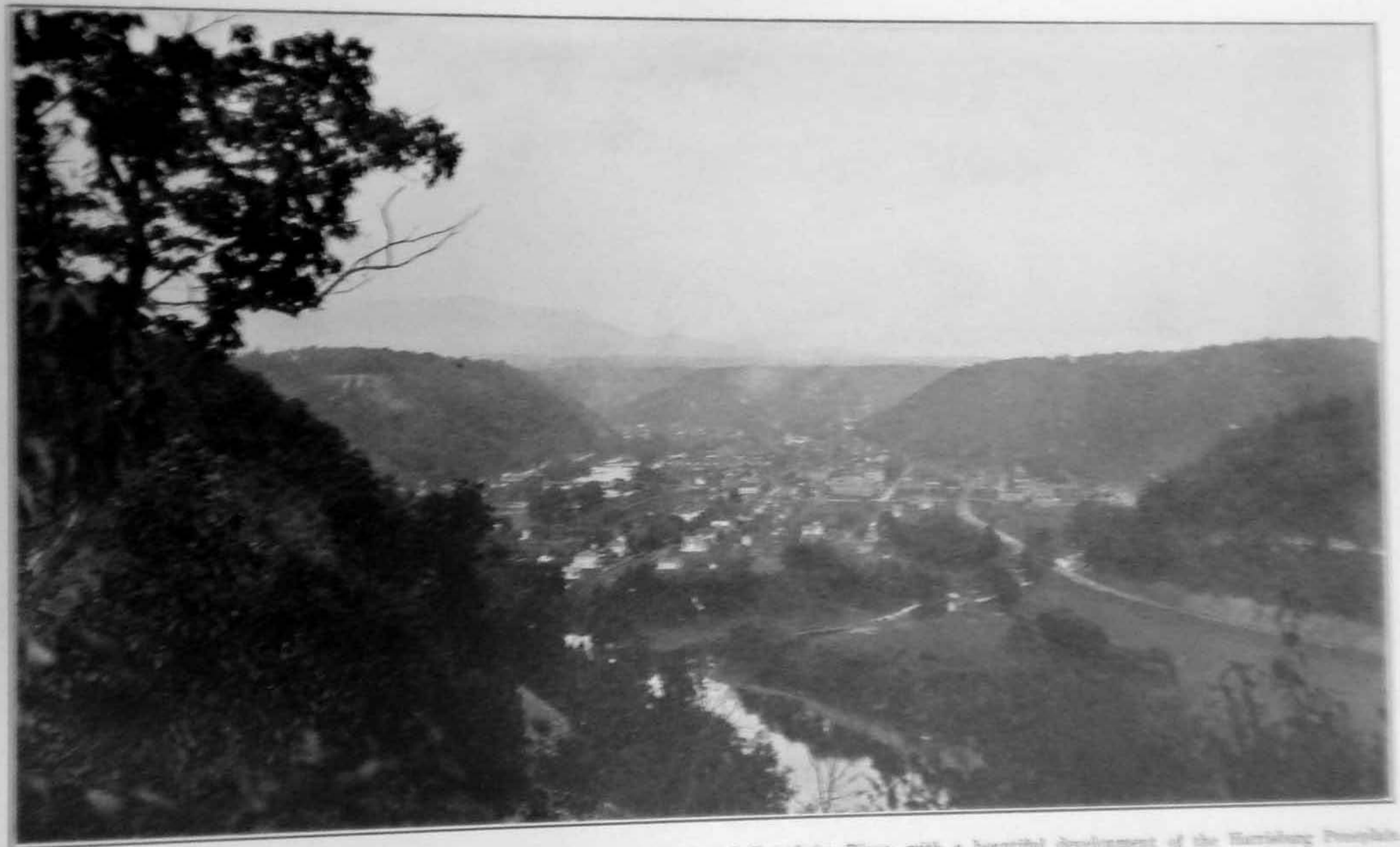
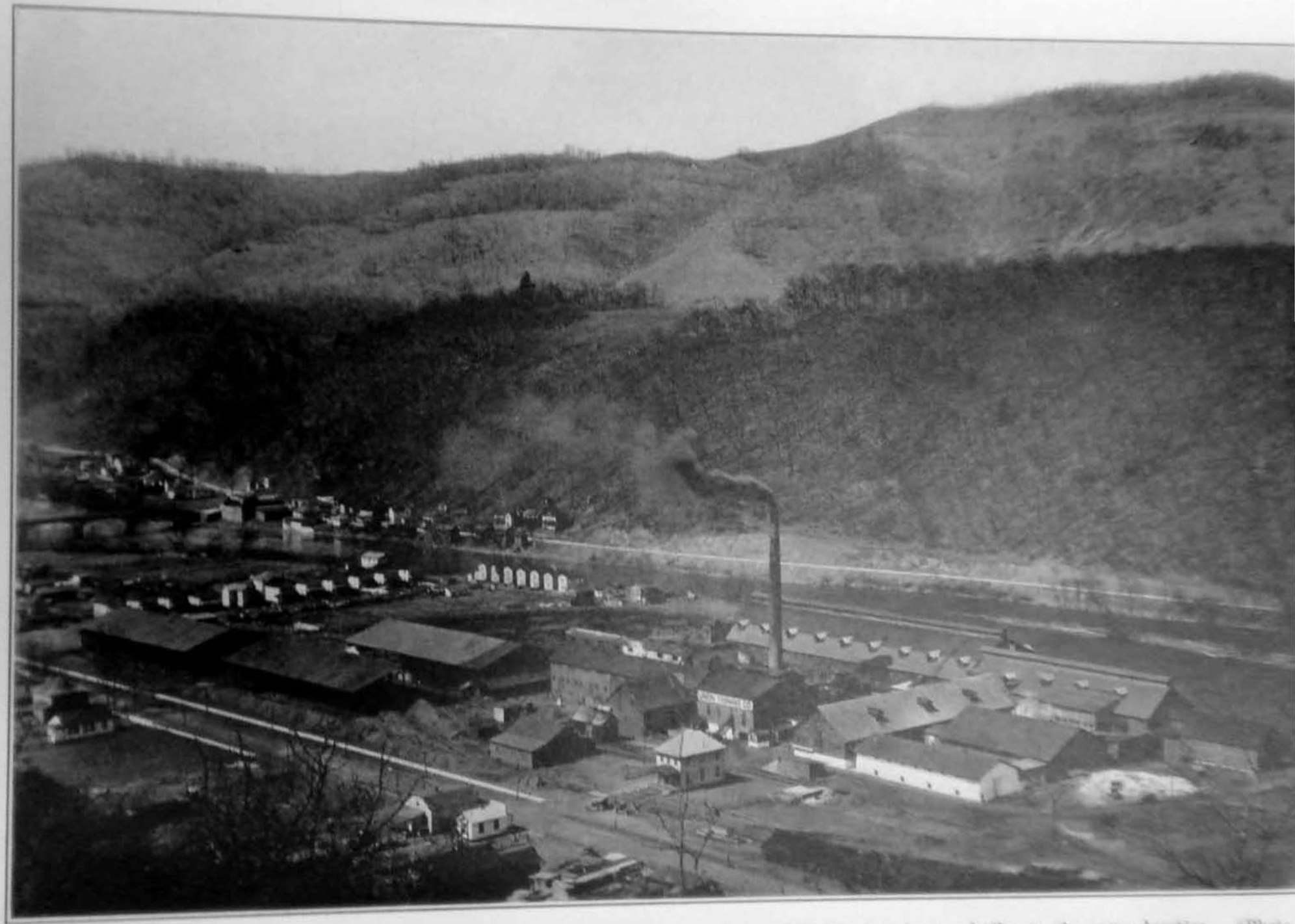


PLATE III.—Marlinton, situated on a joint terrace between Knapp Creek and Greenbrier River, with a beautiful development of the Harrisburg Pennsylvanian
(Photo. by Paul H. Price).



This plant burned in 1927 but has been rebuilt on the same location. (Photo

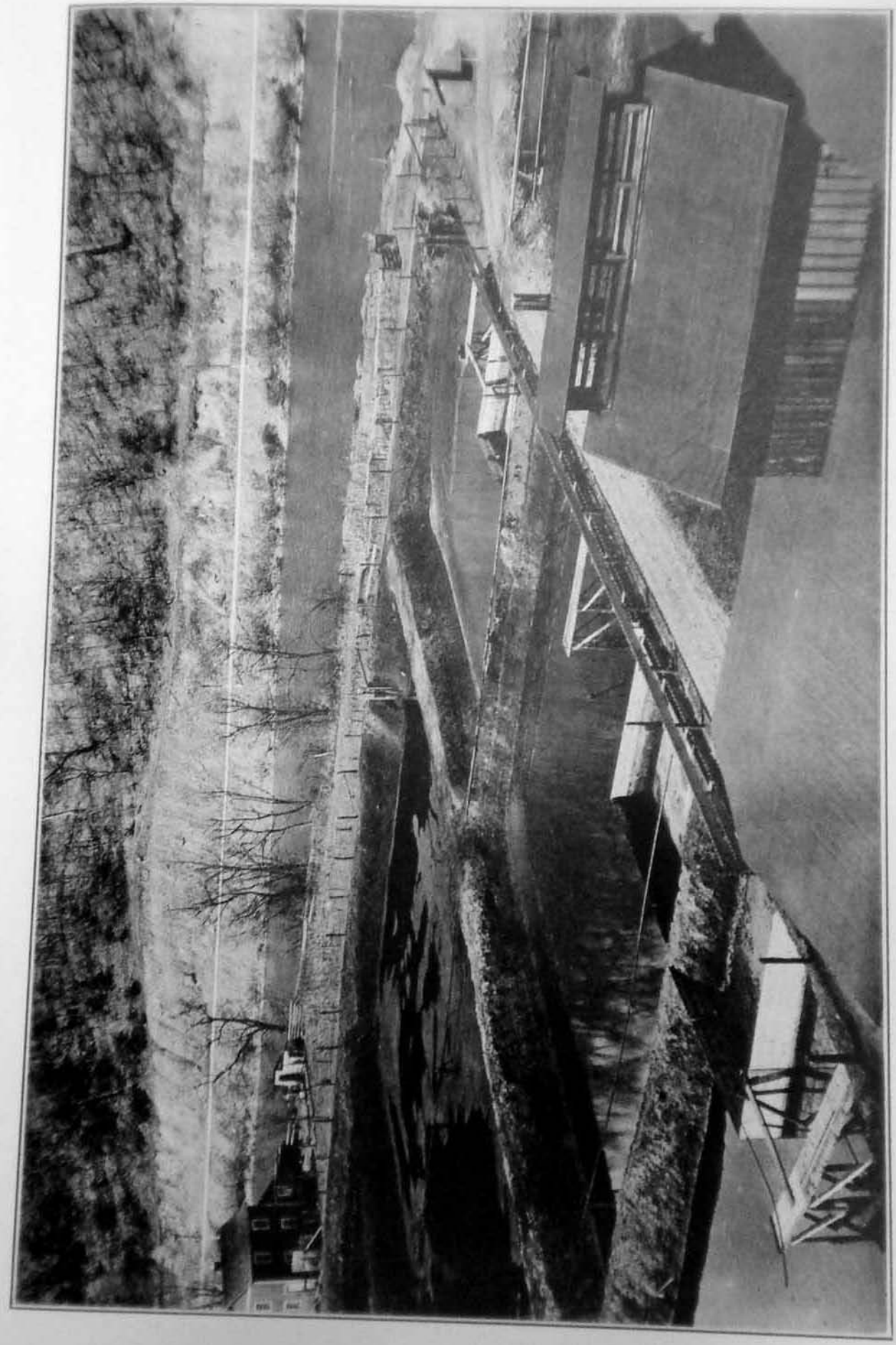


PLATE V.—Settling Ponds of the Greenbrier Tannery at Marlinton. (Photo. by Union Tanning Co.)

the Chesapeake and Ohio Railway and by a lumber railroad of the West Virginia Pulp and Paper Company. The population is composed largely of employees of the West Virginia Pulp and Paper Company which operates a local lumber mill.

Hillsboro.

Hillsboro is the oldest town* in Pocahontas County from the standpoint of incorporation, having been chartered in 1886. It is located upon a broad level plain in the southwestern part of the county, with an elevation of 2,302 feet, being situated in the midst of the finest limestone farming area in the county and being largely supported by the products from these farms. For many years Hillsboro was the educational center of that region and supported the Hillsboro Academy.

*The town of Huntersville was incorporated December 18, 1822, by the Virginia General Assembly, Acts of 1822-23, p. 94, but charter was surrendered at a date unknown—R.C.T.

ATE VI.—Cass. One of the West Virginia Pulp and Paper mill plants is located here. T
rocks exposed in the valley are of Catskill age with Pocono sandstones forming

PRECIOUS METALS.

It was said long ago that an investigator who makes an adverse report upon a given region should be prepared to be as ill received as a physician who informs a patient that there is no hope of recovery.

A thorough investigation, however, of the stratigraphy and structure of the rocks of Pocahontas County leads the experienced geologist or engineer to the conclusion that the precious metals like gold, silver, copper, and lead will not be found save in small quantities, if at all. There exists, however, in practically every county of the State a belief that there is an abundance of these minerals hidden in some secure place, the exact location of which was known only by a man who is now gone, the report having been handed down from generation to generation. Credence in such beliefs is more prevalent in the more mountainous sections, the argument being offered that lands which do not contain coal and which are too rough for cultivation must have gold or other precious metals to preserve the general balance in nature.

It is a safe assumption, however, that the surface rocks of Pocahontas County, which are sedimentary, that is, deposited in or by water, will not contain precious metals in appreciable quantities. No trace of igneous or quartzite intrusions, with which these metals are commonly associated, are known to occur in this area; neither are plugs or dikes known to occur, while almost the only quartz is that which is contained in the pebbles of the conglomeratic sandstones which were derived from the erosion of an ancient mountain mass located along what is now the Atlantic Coast. It is quite possible these ancient mountains, from which these sediments were derived, contained appreciable amounts of the precious metals, but in the process of erosion, transportation, and redeposition the ores have been so scattered that the

TRACES OF ORE.

In Edray District in the general vicinity of Onoto numerous reports regarding the presence of gold in an argillaceous limestone, which corresponds to the Glenray or Reynolds horizon, were prevalent. Some of the ore is said to have been assayed in Washington and had a value of 15 dollars per ton. A sample of this material, handed to the writer, revealed small mica flakes and iron pyrites. As already stated in the foregoing discussion, gold in appreciable quantities will not be found in such sediments.

Stony Bottom Prospect.—Some years ago a shaft was sunk near Stony Bottom in the hope of locating gold-bearing rock. Unfortunately at the time of the writer's visit this opening had fallen partly shut so that the bed-rock could not be seen. The surface horizon is in the Catskill Series. A sample of the rock reported to have been taken from this prospect showed traces of copper. The matrix of this small single specimen was composed of quartz and was traversed by minor fissures, and had the appearance of a true quartz vein. It is quite unlikely that any of the precious metals will be found in the Catskill rocks. If, however, there should prove to be a concealed dike or vein, only further prospecting would reveal its economic value.

Fork of the Greenbrier River in the northern part of the county.

In the Devonian Period the shales of the Catskill Series correspond favorably with those of the Mauch Chunk and are located in most cases along the Chesapeake and Ohio Railway so that they are easily available. The shales of the Chemung and Portage Series are interbedded with flaggy sandstones so that they offer little inducement, while the black Genesee and Marcellus Shales, lower down, contain so much organic matter that their shrinkage would be too great.

In the Silurian Period shales occur in the Clinton and Red Medina Series. In some cases the former by careful selection might be successfully used for building brick or tile, but their exposures are generally inaccessible so that the better located deposits would naturally outrank them in importance.

Fire Clay.

The true fire clays that have a quality of resisting high furnace temperatures are not known to occur in the county. It is possible that in the western portion of the county some of these clays may be associated with the coals but all clays associated with the coals are not fire clays, so that only further investigation will definitely determine their presence. Even if present, however, their general inaccessibility would prevent their use in the near future.

BUILDING STONE.

QUARRIES.

In Chapters VI-XI inclusive, dealing with stratigraphy the sandstones have been described, with attention called to those which have been quarried or which are suitable for masonry construction; and at the beginning of Chapter XIV the limestone quarries have been noted. Very seldom have the local sandstones been utilized for building purposes, the stone being used mostly for railroad bridge abutments and for a few of the larger buildings of Marlinton.

AVAILABLE STONE.

The sandstones of the county, as described in Part II of this report, vary from thin flaggy and shaly beds that are of no value as building stone to massive ledges 50 to 75 feet in thickness that can be worked into any desired shape. In the Pottsville Series there are several coarse, gray to white sandstones that can be used locally for dimension stone as the needs arise. In the Mauch Chunk Series many of the sandstones are often shaly and lenticular, while others are of massive and durable character with a pleasing texture. In the Greenbrier Series there are no sandstones suitable for building stone but some of the limestones might be successfully used for such purposes. The Union or "Marble" member will be discussed more in detail on the following pages. The Maccrady Series offers no stone durable enough for construction material, but the Broad Ford Sandstone member of the underlying Pocono often attains a character suitable for dimension stone. As previously noted it has been quarried quite extensively at Marlinton and at many other points along the Greenbrier River for use in bridge abutments, building foundations and steps, where durability and abrasive resistance are important.

In the Devonian Period the Catskill Series contains numerous ledges of sandstone that are often shaly and lenticular but occasionally quite massive and durable with colors of brown and red. In the Chemung and Portage Series the sandstones are generally flaggy but often attain beds of considerable thickness. These beds weather out, breaking along the joint-planes into rectangular shapes of various sizes and with very smooth faces, so that further shaping is unnecessary. The colors vary from gray to brown to green and buff. That a market could be found for these flags is quite likely since structures built from them are not only pleasing in appearance but very durable. Several of the Universities of central New York have constructed some of their finest buildings from stone of similar character.

The Genesee, Hamilton, and Marcellus Series are quite devoid of any rocks suitable for building stone in this county.

The Oriskany is often massive and persistent but in this area it is generally unfit for masonry.

In the Silurian Period there are heavy sandstones in the Clinton Series, two of which are quartzitic and very durable but of such a character as to be very difficult to work, while a third, or "Iron Sandstone", is of a red color, very durable and often weathers into rectangular blocks so that further shaping is seldom necessary. Where these beds are not already broken by gravity, it is very difficult to shape them. The White Medina Sandstone is massive and generally quite quartzitic, like those of the Clinton, and it is very difficult to work into any desirable shapes. In the Red Medina the sandstones are generally too shaly and irregular to be of any value.

POCAHONTAS "MARBLE"[2]

In the vicinity of Hillsboro, (See Figure 20-A), the Union member, occurring near the top of the Greenbrier Series, has attained a character that classifies it, to the trade, as a grade of marble. This member, which is highly fossiliferous, contains such marine life as blastoids **(Pentremites)**, crinoids, brachiopods, corals, gastropods, and bryozoa **(Archimedes)**. Along with this abundance of marine life are millions of minute concretions resembling fish roe which are called oolite. Either at the time of deposition or by later infiltration from circulating waters (probably the former) sufficient coloring was carried in to give it a pleasing appearance to the eye, more especially when polished. These deposits vary in color from red to maroon to a pinkish tinge and from that to the various shades of gray. This marble phase varies from 25 to 40 feet in thickness, being red or maroon, highly fossiliferous and oolitic at the top, and blending into a light fossiliferous oolite, with the various shades of gray, at the base. This horizon will produce stone suitable for ornamental purposes.

Above the red is a 20-foot highly fossiliferous, fine-grained, gray limestone that could also be used as a building stone. Along Marble Run there is a concealed interval of 35 feet beneath the above-named gray and then a ten-foot

---

[2]Price, Paul H., Marble Deposits of Pocahontas County, W. Va., Proc., W. Va. Academy of Science, Vol. 2, pp. 107-117; 1928.

stratum of very fossiliferous light-gray limestone in which some of the fossils are filled with pink calcite, thus giving a beautiful surface when polished. These observations show that there is a workable face of about 40 feet with the possibility of using both the overlying and underlying layers for different grades of building stone. If this could be done it would increase the thickness to some 75 feet. Although the marble phase of these deposits is limited to the darker shades, the material presents a very pleasing appearance when polished.

A better idea of the character, contents, and structure can be gained from an examination of thin sections of the rocks under the microscope. Several samples for this purpose were taken from the area in the vicinity of Hillsboro by the writer from which sections were prepared by W. Harold Tomlinson of Swarthmore, Pa. As would be expected the predominating constituent is calcium carbonate, largely from the shells of marine organisms, ranging from 76 to 97 per cent. Silica, both colloidal and crystalline, is present in small quantities ranging from a little over one to 13 per cent. A small amount of ferric iron is present to give it color, along with small amounts of alumina, magnesium carbonate and a trace of phosphoric acid. These sections, as enlarged by Prof. W. E. Rumsey and A. Berg of the West Virginia Agricultural Experiment Station, are herewith reproduced as Plates Nos. LIX to LXIII.

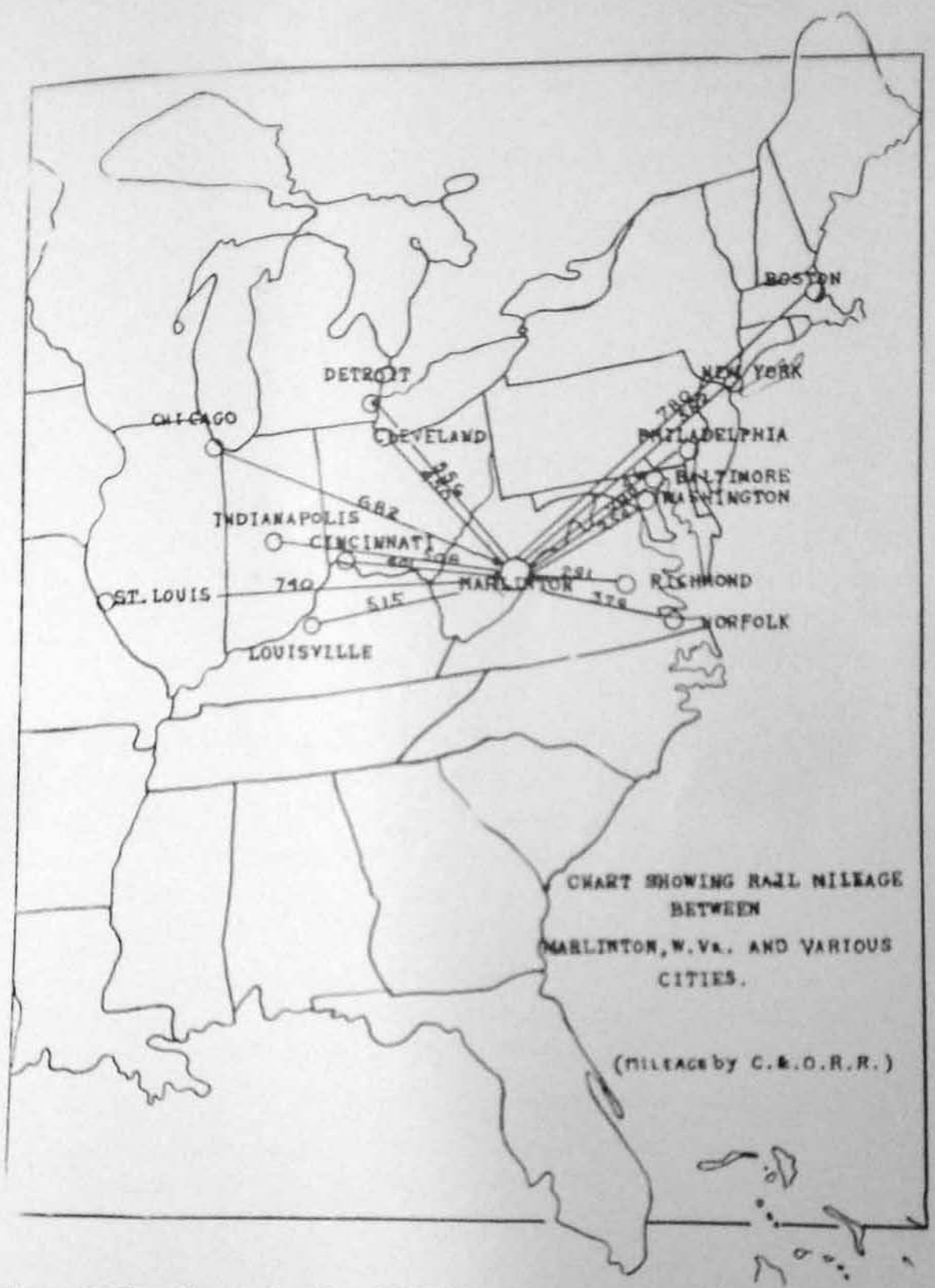


Figure 20-B.—Chart showing Rail Mileage between Marlinton, W. Va., and Various Cities (Mileage by C. & O. R. R.).

cheaper material is sought. In this respect Pocahontas County is quite fortunate in having large deposits of weathered chert beds that make an excellent road-surfacing material. This member (Huntersville Chert) has been described in detail on pages 236-239. These chert deposits outcrop on either side of Beaver Lick-Browns-Michael Mountains from the Greenbrier County line to Green Bank on its northern extension and can be seen on Figure 12. This material had already been used quite extensively for surfacing many of the roads east of the Greenbrier River and especially State highways Nos. 42 and 43 from Marlinton to Green Bank. The chert fragments are found weathered out in loose deposits along the outcrop of the Huntersville Chert member so that the material can be readily handled by steam shovels. (See Plates LVI and LVII). When spread upon the road, scraping to keep the surface smooth is the only treatment necessary while the finer particles of clay, sand, iron, and lime that may be present form an excellent binder under the weight of traffic. In the second year a coating of asphalt mixed with fine lime can be put on and a very good hard-surfaced road is the result.

River and Creek Gravel.—Many of the rivers and larger creeks contain large amounts of gravel, which is the more resistant portions of the rocks from which they came, and afford a cheap supply of good material for road improvement. This gravel may be used particularly to improve muddy roads of secondary importance, where paved roads would be too expensive to maintain. Usually a good grade of gravel can be secured for aggregate for concrete paving, bridge abutments, and concrete structures in general.

Sand.—Sand, which is an important item in road building both for masonry and concrete, can generally be found along the rivers and creeks, being derived from the weathering of the various sandstones from the Pottsville Series down to and including the Medinas. Sand of a better quality can be secured by crushing it from the sandstones, but it is generally quite expensive. In some instances these horizons have been sufficiently weathered or decayed to furnish quantities of sand at their outcrops. This is particularly true of the Oriskany

Sandstone at many points along its outcrop, and of the Droop Sandstone on Droop Mountain. At the latter locality the sandstone caps the mountain for several square miles and lies in practically a horizontal position. In many places its upper portion has been so much decayed that large quantities of clean loose sand are available.

In addition to these materials there are numerous sandstones as well as arenaceous and calcareous shales that may often be used advantageously on the local roads to improve their condition.

GLASS-SAND.

No development of glass-sand has been attempted in Pocahontas County, although there are one or more deposits that deserve detailed investigation. Since silica is the major ingredient of glass-sand, it influences the character of the ware. Sands with impurities, unless they can be easily removed, and especially if they are to be used for the higher grades of glassware, should be avoided. Chemical analyses of most sands show at least traces of iron oxide, alumina, titanium oxide, lime, magnesia, and organic matter, but these are often included in mineral grains separate from the quartz and may be easily removed.

Along with a good sand two other factors are important, one being a favorable quarry site and the other, access to good transportation. These various factors were considered in sampling sandstones for analysis in Pocahontas County. Among the numerous sandstones available only two offer glass-sand possibilities, these being the Droop and White Medina Sandstones. The Oriskany Sandstone, which is quarried extensively in Berkeley County, is generally quite impure in Pocahontas.

The Droop Sandstone that covers several hundred acres on Droop Mountain meets the general requirements of a glass-sand unless it should be too fine. Unfortunately no screen tests were made but the sand is in general quite fine and might not all be retained on the 120-mesh which is usually demanded.

Two samples of this sandstone were taken in the field by the writer and analyzed in the Survey laboratory by Dr. B. B. Kaplan, Chemist. The contents were as follows:

	Sample No. 53 PH. Per cent.	Sample No. 64 PH. Per cent.
Silica (SiO_2)	98.18	98.14
Ferric Iron (Fe_2O_3)	0.36	0.12
Alumina (Al_2O_3)	0.70	0.56
Magnesia (MgO)	0.22	0.26
Potash (K_2O) + Soda (Na_2O)	0.11	0.21
Loss on Ignition	0.46	0.46
Total	100.03	99.75

Sample No. 53, taken on Droop Mountain, along Millstone Creek, one mile north of Caesar Mountain School.

Sample No. 64, taken from ledge on Droop Mountain 0.2 mile northwest of Mt. Zion Church.

With reference to No. 64 PH., Dr. Kaplan reported that by washing with dilute muriatic acid practically all the impurities were removed and left a product of great purity.

The White Medina Sandstone is often quite quartzitic in character and would be expensive to crush. At some localities, however, it appears to be more porous and offers glass-sand possibilities. Such an exposure is seen near Minnehaha Springs where the following sample was collected:

	Sample No. 61 PH. Per cent.
Silica (SiO_2)	97.76
Ferric Iron (Fe_2O_3)	1.28
Alumina (Al_2O_3)	0.62
Magnesia (MgO)	0.05
Loss on Ignition	0.00
Total	99.71

Dr. Kaplan, who analyzed the above sample, also notes that the iron content can be almost completely removed by washing with dilute muriatic acid.

In view of the great amount of sand at these two respective horizons, and particularly the former or Droop Mountain area, where it is practically free from cover and where it could be lowered by gravity to the Chesapeake and